



Review of Duke Energy Carolinas  
LLC Amended Application for  
Approval of Rider 11

DOCKET NO. 2019-89-E

South Carolina  
Office of Regulatory Staff



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June 14, 2019

## Executive Summary

In Duke Energy Carolinas, LLC's ("Company" or "DEC") Amended Application for Approval of Rider 11 ("Application"), the Company is seeking recovery of \$82,903,103 with \$37,077,223 (or 45%) attributed to residential customers and \$45,825,880 (or 55%) attributed to non-residential customers to cover the revenue requirements of Rider 11. This report details the South Carolina Office of Regulatory Staff's ("ORS") findings and recommendations based on its review of the Company's Application, programs, and cost recovery mechanism. Based on its review, ORS recommends the following adjustment:

- A reduction of \$2,536 to the Company's total system program costs to account for the removal of certain expenses that were either not allowable for ratemaking purposes or were incorrectly categorized. Since the impact on the proposed rates from this adjustment is negligible, correcting journal entries will be made by the Company prior to its next annual Demand Side Management ("DSM") and Energy Efficiency ("EE") filing.

The current Rider 10 rates approved for 2019 and the Rider 11 rates proposed for 2020 are shown in the table below.

DSM/EE Rider	Approved Rider 10 Rate (¢/kWh)	Requested Rider 11 Rate (¢/kWh)	Decrease to Rider 10 Rate (¢/kWh)
Residential	0.7384	0.5783	-0.1601
Non-Residential	1.6006	0.9044	-0.6962

ORS finds that the programs continue to perform well. Realized cumulative energy savings have exceeded the anticipated energy savings by fifty-seven percent (57%), and although the number of non-residential opt-outs has increased, the Company has responded by creating an additional opt-in window and by adding programs that target non-residential customers. ORS also finds that the updated DSM and EE Rate Riders were developed in accordance with the terms and conditions set forth by the Commission and are based on reasonable estimates of participation in the Company's DSM and EE programs.

## Background and Introduction

In Docket No. 2013-298-E, Order No. 2013-889, the Public Service Commission of South Carolina (“Commission”) approved the Revised Settlement Agreement (“Settlement”) which stipulated, among other negotiated items, the approval of DEC’s application for a new cost recovery mechanism and a revised portfolio of DSM and EE programs. The revised cost recovery model allows the Company to recover (1) all reasonable and prudent costs incurred for the adoption and implementation of new DSM and EE programs; (2) net lost revenues associated with a particular vintage of EE programs for a maximum of three years or the life of the measure; and (3) an earned incentive equal to 11.5% of the net benefits achieved through the programs.

On March 1, 2019, the Company filed an application for approval of Rider 11 in Docket No. 2019-89-E. Rider 11 consists of prospective amounts for Vintages 2019 and 2020, along with true-up components and recovery of lost revenues under previous vintages, namely Vintages 2015, 2016, 2017 and 2018. On June 11, 2019, the Company filed its amended application for approval of Rider 11 to include a benefit to customers resulting from the return of excess deferred income taxes (“EDIT”) in lost revenues, which reflects the Commission’s decision on EDIT in the Company’s recent base rate case, Docket No. 2018-319-E (Order No. 2019-323). The Company also took the opportunity to correct and adjust certain program costs as explained in the amended application. The combined adjustments to Rider 11 result in a reduction to both the residential and non-residential rates. This report addresses DEC’s Rider 11 as amended by DEC in their June 11 filing. The amended Rider 11 billing factors, which are based solely on the revised cost recovery method, will apply to the billing period January 1, 2020 through December 31, 2020.

The Company’s cost recovery mechanism identifies vintages by calendar year. The Vintage 2020 period is the calendar year 2020 and costs for measures projected to be installed in that year are to be recovered under Rider 11. Table 1 below summarizes the program years for each of the vintages.

**Table 1: Vintage Program Years**

Program Year/Rider	Beginning Date	Ending Date	Vintage Number
1	February 1, 2010	December 31, 2010	SAW -Vintage 1
2	January 1, 2011	December 31, 2011	SAW -Vintage 2
3	January 1, 2012	December 31, 2012	SAW -Vintage 3
4	January 1, 2013	December 31, 2013	SAW -Vintage 4
5	January 1, 2014	December 31, 2014	Vintage 2014
6	January 1, 2015	December 31, 2015	Vintage 2015
7	January 1, 2016	December 31, 2016	Vintage 2016
8	January 1, 2017	December 31, 2017	Vintage 2017
9	January 1, 2018	December 31, 2018	Vintage 2018
10	January 1, 2019	December 31, 2019	Vintage 2019
11	January 1, 2020	December 31, 2020	Vintage 2020

## DSM/EE Programs

The Company's filing includes requests for cost recovery encompassing twenty-one (21) DSM/EE programs. Major developments in 2019 include the following:

- Due to significant reductions in DEC's avoided costs in Vintage 2019, two programs – the Energy Wise for Business program and the residential HVAC Energy Efficiency program – are only marginally cost effective. The Company is taking actions to improve the cost effectiveness of these programs. ORS will monitor future developments in this area.
- The non-residential Energy Efficient ITEE Program has accomplished only 25% of projected energy savings through 2018, and the projected average cost per kilowatt hour ("kWh") saved increased dramatically in 2020. ORS will monitor the cost-effectiveness of this program in future filings.

Table 2 on the following page shows program costs expressed in cents per kWh saved or dollars per kilowatt ("kW") saved for the Vintage 2020 projected participation of each program.

**Table 2: Program Costs**

<b>Residential Programs</b>	<b>¢/kWh</b>
Energy Efficiency Education	4.6
Energy Assessments	3.3
My Home Energy Report	3.8
Energy Efficient Appliances and Devices	1.7
HVAC Energy Efficiency	5.3
Income Qualified Energy Efficiency and Weatherization Assistance	25.9
Multi-Family Energy Efficiency	1.6
Power Manager	\$31.47/kW
<b>Commercial and Industrial Programs</b>	<b>¢/kWh</b>
Smart Saver Custom Technical Assessments	1.4
Smart Saver Custom	1.2
Smart Saver Energy Efficient Food Service Products	2.7
Smart Saver Energy Efficient HVAC Products	4.4
Smart Saver Energy Efficient Lighting Products	1.2
Energy Efficient Pumps and Drives	1.3
Energy Efficient ITEE	5.5
Energy Efficient Process Equipment Products	2.2
Smart Saver Performance Incentive	1.3
Small Business Energy Saver	1.9
EnergyWise for Business	\$218.24/kW
Power Share	\$39.65/kW
Power Share Call Option	\$63.98/kW*

\*The cost shown for the Power Share Call Option program is a 2015 value.

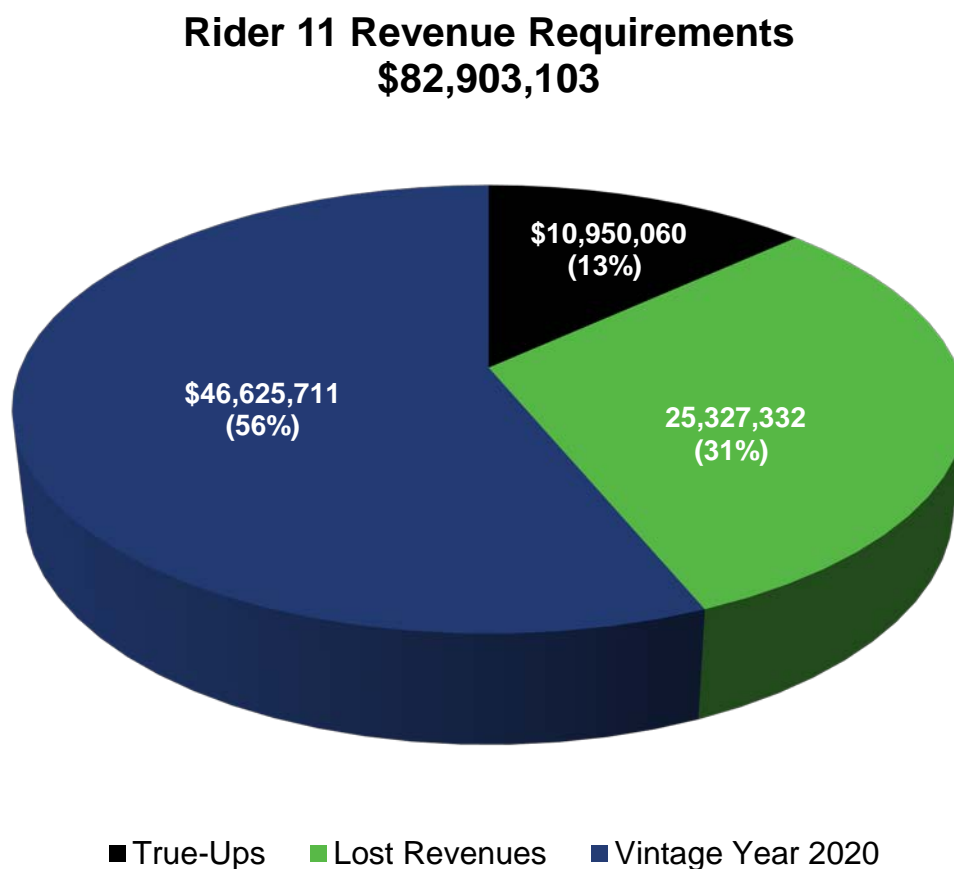
Based on information provided by the Company, the programs appear to be performing well. The Company reports that realized cumulative energy savings of the Company's portfolio of programs through the end of calendar year 2018 exceeded the anticipated

energy savings by approximately fifty-seven percent (57%), and cumulative peak demand savings through 2018 from DSM programs were approximately ninety-six percent (96%) of the anticipated peak demand savings. The realized energy savings have been driven by higher than projected participation rates in both the residential and non-residential lighting programs and by a strong response to the Company's widening array of non-residential programs.

## Program Cost Evaluation

In DEC's Application, the Company is seeking recovery of \$37,077,223 (or 45%) from residential customers and \$45,825,880 (or 55%) from non-residential customers to cover the revenue requirements of Rider 11 for a grand total of \$82,903,103. A breakdown of the components of the total revenue requirement is shown below in Chart 1.

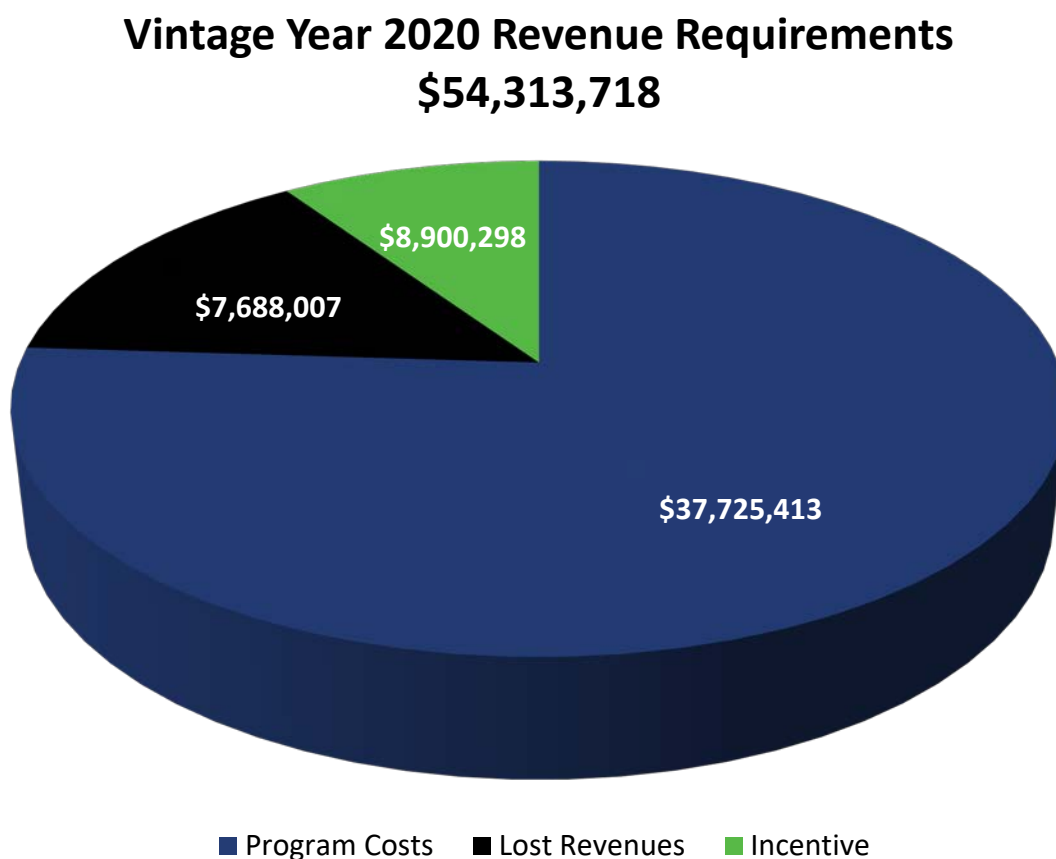
**Chart 1: Rider 11 Revenue Requirements**



A line-by-line breakout of the major cost components of the Rider 11 filing and the development of the billing factors is shown in Exhibit 1. The requested revenues from residential customers are recovered from all residential ratepayers, while the non-residential revenues are recovered from the non-residential ratepayers on an eligible rate schedule that do not opt-out of the DSM/EE Rider.

The cost components of Vintage Year 2020, the largest portion of Rider 11, are illustrated below in Chart 2.

**Chart 2: Vintage Year 2020 Revenue Requirements**



For the Company's Vintage 2020 EE programs, the average lifetime cost of each kWh saved is estimated by the Company to be 2.0 cents. The average lifetime cost of the demand savings for the Company's Vintage 2020 DSM programs is estimated to be \$38.76 per kW. These results compare favorably with the costs of supply-side generation.



## **Advisory Group**

The DEC Collaborative Group (“Carolinas Collaborative”), the Company’s advisory group concerning DSM and EE matters, meets bimonthly to discuss the status of each program, including preliminary participation statistics, Evaluation, Measurement & Verification (“EM&V”) plans and preliminary EM&V data. The Carolinas Collaborative consists of members from both North Carolina and South Carolina representing all customer classes and a variety of governmental, environmental and commercial interests. During the meetings, the Company also provides a description of proposed program enhancements and seeks input from members of the advisory group regarding how these modifications may impact participation among the various sectors.

## **Evaluation, Measurement & Verification**

Information from the following EM&V reports was utilized for the Rider 11 filing:

- 2017 Evaluation Report for the Duke Energy Carolinas PowerShare
- Duke Energy Carolina/Duke Energy Progress Non-Residential Prescriptive Program Evaluation Report – Final
- Duke Energy Progress & Duke Energy Carolinas Energy Efficient Lighting & Retail LED Programs Evaluation Report – Final
- Duke Carolinas 2017 Power Manager Evaluation
- Smart \$aver Evaluation Report - May 1, 2016 – April 30, 2017
- Duke Energy Carolinas 2015 Low Income Weatherization Program Evaluation Report – Final
- EM&V Report for the Small Business Energy Saver Program
- Evaluation of the Smart \$aver® Custom Incentive Program in North and South Carolina
- Duke Energy Carolinas Energy Efficient Appliances and Devices Program Evaluation Report
- Duke Energy Carolinas Residential Energy Assessments Program Evaluation Report – Final
- Duke Energy Carolinas and Progress EnergyWise Business Evaluation Report – Final

- Smart Saver® Non-Residential Custom Program Years 2016-2017 Evaluation Report

## **Estimates Used in the Filing**

All prospective portions of Rider 11 (pertaining to amounts associated with years 2019 and 2020) are estimates. These estimated values were derived from the DSMore™ computer model. ORS tested and reviewed the DSMore™ model and finds it suitable for this purpose.

## **Forecasted Retail Sales**

The Company utilized its fall 2018 forecast of retail sales, adjusted for non-residential opt-outs, to develop the Rider 11 rates. ORS finds this to be a reasonable approach to establish rates.

## **Existing DSM Programs**

Prior to the implementation of the SAW programs, the Company used the North Carolina and South Carolina Interruptible Service (“IS”) and Standby Generation (“SG”) programs – Rider IS and Rider SG (“Existing DSM Programs”) – for demand-side management. Although DEC is working to move the Existing DSM Programs’ customers to the new programs, some customers continue to take service under the Existing DSM Programs. The rate recovery for the Existing DSM Programs, which is based on the recovery of incentives paid, is computed separately from the SAW programs and the revised portfolio of programs. In the Rider 11 filing, the rate recovery for the Existing DSM Programs is included in the prospective portion of Rider 11.

ORS verified that all program costs, avoided costs and lost revenues associated with the Company’s IS and SG programs have been excluded from the Company’s incentive program, that the program costs associated with the Company’s Existing DSM Programs are being recovered as a separate component of Rider EE, and that the recovery of the cost of these programs is consistent with the Company’s approved tariff. The total cost of the Existing DSM Programs included in Rider 11 is \$1,340,492.

## **Avoided Costs**

ORS verified that the avoided energy and capacity costs calculations for Vintages 2014 through 2018 are based on the avoided energy cost rates and avoided capacity cost rates that were approved in Docket No. 2013-298-E. The avoided transmission and distribution (“T&D”) costs are based on avoided T&D cost rates developed in a study completed during 2014. However, for Vintages 2019 and 2020, the Company found that the avoided energy and capacity cost rates had changed by more than 25% and updated those rates accordingly. Due to this significant downward adjustment in the avoided energy and capacity cost rates, the Company is considering modifications to the DSM and EE programs to ensure that the programs remain cost effective.

## **Energy and Peak Demand Savings**

The Company projects that the measures installed in Vintage 2020 will reduce electric usage over the lifetimes of the installed measures by more than 5,244,965 megawatt hours and will provide the capability to reduce the annual one-hour peak usage by 982 megawatts. These are considerable savings and may provide DEC the ability to avoid or defer the construction of additional generating facilities.

## **Opt-Outs**

Under the original SAW programs, industrial customers classified as manufacturing industries that utilized at least 50% of electrical usage for manufacturing could opt-out of the Company’s programs. Each eligible customer could opt-out of the EE programs, the DSM programs, or both sets of programs. Under the revised cost recovery mechanism and portfolio of programs (Vintage 2014 and forward), the ability to opt-out was expanded to include non-residential customers that are classified as manufacturing industries or that have an annual consumption of 1,000,000 kWh or greater in the billing months of the prior calendar year and have implemented cost-effective energy efficiency measures. The number of non-residential customers electing to opt-out of the EE programs has increased from 67% in Vintage Year 2014 (based on energy utilization) to 70% in Vintage

Year 2018. For the DSM programs, the customers opting out has increased from 60% in Vintage Year 2014 to 62% in Vintage Year 2018.

ORS continues to monitor the increasing numbers of non-residential customers that elect to opt-out of the Company's programs. The Company has responded by creating an additional opt-in window during the first week of March in each year, and also by adding additional programs targeted toward these customers, such as the EnergyWise for Business program.

## Rate Evaluation

The Rider 10 rates approved for 2019 and the Rider 11 rates requested for 2020 are shown below in Table 3.

**Table 3: Comparison of Current and Requested Rates**

DSM/EE Rider	Approved Rider 10 Rate (¢/kWh)	Requested Rider 11 Rate (¢/kWh)	Decrease to Rider 10 Rate (¢/kWh)
Residential	0.7384	0.5783	-0.1601
Non-Residential	1.6006	0.9044	-0.6962

The requested change in the DSM/EE Rate Rider for an average residential customer using 1,000 kWh per month will decrease the customer's monthly bill by approximately \$1.60. The Rider 11 residential rate is approximately 22% lower than the Rider 10 rate. The main drivers for this decrease in the residential rate are the reduced incentives in lighting measures driven by the reduced costs of LED bulbs and the reflection of the return of the EDIT in lost revenues.

The requested Residential Rider would apply to all residential customers. However, due to the non-residential opt-out provision, the requested Non-Residential Riders apply only to those non-residential customers that have elected to participate in the Vintage Year 2019 programs.

Because eligible non-residential customers have the ability to opt-out of either the DSM or EE programs, and can do so by vintage, the Company has developed separate non-residential rates for DSM and EE participants of each vintage. The non-residential rate shown in Table 3 is the total rate that would be paid by non-residential customers that do not opt-out of any vintage for either the DSM or the EE programs.

## Conclusion

ORS recommends the following adjustment to the Company's request in this filing:

- A reduction of \$2,536 to the Company's total system program costs to account for the removal of certain expenses that were either not allowable for ratemaking purposes or were incorrectly categorized. Since the impact on the proposed rates from this adjustment is negligible, correcting journal entries will be made by the Company prior to its next annual DSM/EE filing.

ORS finds that with the recommended adjustment, the updated DSM/EE Rate Riders were developed in accordance with the terms and conditions set forth by the Commission and are based on reasonable estimates of participation in the Company's DSM and EE programs. ORS recommends the approval of the Company's requested Rider 11 rates as proposed in their Application.

**Revenues and Billing Factors**  
**Rider 11 - As Amended**

<b><u>Residential Rider</u></b>	<b><u>Revenue Requirement</u></b>
<u>True-Ups:</u>	
Cost to be Recovered for Vintage Year 2015 True-Up	(\$133,412)
Cost to be Recovered for Vintage Year 2016 True-Up	(\$463,478)
Cost to be Recovered for Vintage Year 2017 True-Up	\$403,145
Cost to be Recovered for Vintage Year 2018 True-Up	\$5,643,816
<b>Total True-Ups</b>	<b>\$5,450,070</b>
<u>Lost Revenues:</u>	
Vintage Year 2017, year four Lost Revenues (one-half year)	\$699,427
Vintage Year 2018, year three Lost Revenues	\$3,658,997
Vintage Year 2019, year two Lost Revenues	\$2,189,992
Vintage Year 2020, year one Lost Revenues	5,839,031
<b>Total Lost Revenues</b>	<b>\$12,387,447</b>
<u>Prospective Amounts:</u>	
Cost to be Recovered for Vintage Year 2020	\$19,238,631
Existing DSM Program Revenue Requirement	\$518,528
Less: Cost to be recovered through solar access fee	(\$517,452)
<b>Total Prospective Amounts</b>	<b>\$19,239,706</b>
<u>Total Revenue Requirement - Residential</u>	<u>\$37,077,223</u>
Projected SC Residential Sales for the rate period (kWh)	6,411,363,511
<b>Total Revenue Requirement for Residential (¢/kWh)</b>	<b>0.5783</b>

<b><u>Non-Residential Riders</u></b>	<b><u>Revenue Requirement</u></b>	<b><u>Sales to Participants (kWh)</u></b>	<b><u>Rate Rider</u></b>
<u>True-Ups</u>			
Cost to be Recovered for Vintage Year 2015 True-Up - EE Participants	(\$24,291)	5,311,739,884	(0.0005)
Cost to be Recovered for Vintage Year 2015 True-Up - DSM Participants	(\$5,234)	6,028,573,210	(0.0001)
Cost to be Recovered for Vintage Year 2016 True-Up - EE Participants	\$866,701	5,020,899,764	0.0173
Cost to be Recovered for Vintage Year 2016 True-Up - DSM Participants	(\$5,634)	5,951,336,823	(0.0001)
Cost to be Recovered for Vintage Year 2017 True-Up - EE Participants	\$1,916,003	4,924,955,503	0.0389
Cost to be Recovered for Vintage Year 2017 True-Up - DSM Participants	(\$129,452)	5,951,336,823	(0.0022)
Cost to be Recovered for Vintage Year 2018 True-Up - EE Participants	\$1,754,327	4,878,266,122	0.0360
Cost to be Recovered for Vintage Year 2018 True-Up - DSM Participants	\$1,127,570	5,966,243,960	0.0189
<b>Total True-Ups</b>	<b>\$5,499,990</b>		
<u>Lost Revenues</u>			
Vintage Year 2017, year three Lost Revenues - EE Participants	\$1,151,434	4,924,955,503	0.0234
Vintage Year 2018, year three Lost Revenues - EE Participants	\$4,251,946	4,878,266,122	0.0872
Vintage Year 2019, year two Lost Revenues - EE Participants	\$5,687,530	4,843,914,753	0.1174
Vintage Year 2020, year one Lost Revenues - EE Participants	\$1,848,976	4,843,914,753	0.0382
<b>Total Lost Revenue</b>	<b>\$12,939,886</b>		
<u>Prospective Amounts:</u>			
Cost to be Recovered for Vintage Year 2020 - EE Participant	\$18,293,562	4,843,914,753	0.3776
Cost to be Recovered for Vintage Year 2020 - DSM Participant	\$8,270,479	5,964,865,760	0.1524
Existing DSM Program Revenue Requirement	\$821,964		
<b>Total Prospective Amounts</b>	<b>\$27,386,004</b>		
<u>Total Revenue Requirement - Non-Residential</u>	<u>\$45,825,880</u>		<b>0.9044</b>
<b><u>Grand Total Revenue Requirement</u></b>	<b><u>\$82,903,103</u></b>		